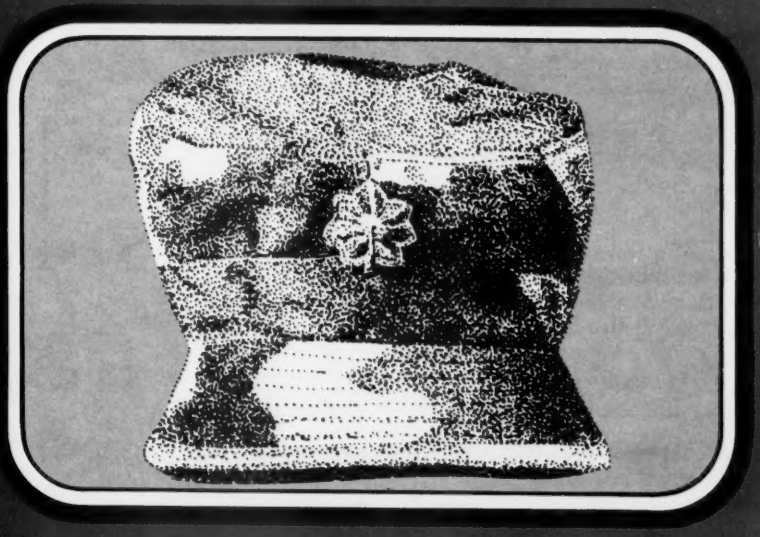
UNITED STATES ARMY

AVIATION DIGEST

JULY 1984



JULY 1984 • VOLUME 30 • NUMBER 7

★
Brigadier General Wayne C. Knudson
Army Aviation Officer
ODCSOPS, Headquarters,
Department of the Army

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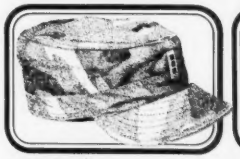
Cover: **This month the *Aviation Digest* concludes its coverage of the Aviation Center training courses that were developed as a result of Army Aviation becoming a branch. Illustration by Paul Fretts.**



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Richard K. Tierney
Editor

Honorable John O. Marsh Jr.
Secretary of the Army

The mission of the *U.S. Army Aviation Digest* (USPS 415-350) is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

The *Digest* is an official Department of the Army periodial published monthly under the supervision of the Commanding General, U.S. Army Aviation Center. Views expressed herein are not necessarily those of the Department of the Army nor the U.S. Army Aviation Center. Photos are U.S. Army unless otherwise specified. Use of the masculine pronoun is intended to include both genders unless otherwise stated. Material may be reprinted provided credit is given to the *Digest* and to the author unless otherwise indicated.

Articles, photos, and items of interest on Army Aviation are invited. Direct communication is authorized to Editor, *U.S. Army Aviation Digest,* P.O. Drawer P. Fort Rucker, AL 36362. Manuscripts returned upon request.

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WE REACHED a major milestone in our development of the Aviation Branch last month with the start of the first Aviation Officer Advanced Course at the Aviation Center. The 71 students and advisors in Class 84-1 are indeed Aviation pioneers. On graduation they will be sent to units Armywide and will be the first standard bearers from our branch school system. Their ideas and actions will have an immediate impact on our branch's training concepts and programs.

Class 84-1 is a part of a much larger effort that we accomplished during the last year. One of our top priorities has been to develop all of the Aviation flight training courses needed to build a strong foundation upon which Army Aviation can grow. You have been able to track this building process through the update articles in the *Aviation Digest.*

In the March 1984 issue, Captain (P) Charles W. Henry provided us with an overview of how we were building our training foundation in his article, "Training The Aviation Warrant and Commissioned Officers." Then in April, Mr. Ronald G. Fry gave us a detailed look at "The Aviation Officer Basic Course." The course, sometimes called "Lieutenants' Training," is the one that was started in June. April's issue also featured CW3 Robert L. Mitchell's "Warrant Officer Candidate Military Development Course."

In May, we read Captain (P) Henry's "The Officer/Warrant Officer Rotary Wing Course." This course is the one commonly referred to as "Flight School." It provides the initial training in the combat flying skills and employment doctrine and makes Aviation a part of a successful graduate's life forever.

The June issue carried Captain Joseph E. Faubian's "Aviation Officer Advanced Course," sometimes called "Captains' Training"; and, CW2 Robert A. Johnson wrote about the "Aviation Warrant Officer Advanced Course." This month the series of articles is completed with Ms. Mary E. Brown's "Warrant Officer Senior Course," and Major Frank A. Wynne's "Aviation Pre-Command Course."

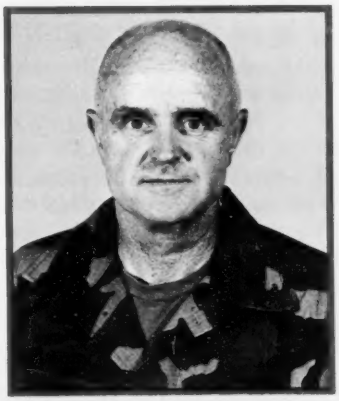
Our Aviation training foundation is strong; we will be sending forth Army aviators well trained in combined arms team operations of whom the entire Army can be proud.

Last month we had another reason to be proud; that was the visit to Ft. Rucker of Army Aviation's first astronaut, Colonel Robert L. Stewart. Colonel Stewart presented the Army Aviation Museum with the Army flag he carried into space, a plaque containing the American flag patch and flight crew shoulder patch from the astronaut suit he wore into space, a large color photo of himself in space in his manned maneuver unit and a photo of the shuttle upon landing.

Colonel Stewart's career has been closely followed by the *Aviation Digest,* and copies of these articles can be obtained by writing to: Editor, *U.S. Army Aviation Digest,* P.O. Drawer P, Ft. Rucker, AL 36362.

Of pride and accomplishments, I extend my congratulations to Captain Richard C. Rhoden, commander of Flight I, Combat Skills Branch I at Lowe Division, and all its members. The branch recently was awarded the prestigious Daedalion Army Aviation Flight Training Safety Award for accumulating 34,361 accident free hours while training 514 student aviators in fiscal year 1983.

I urge you to read the *Aviation Digest.* This month, as every month, these pages witness the continued development of our branch, along with the exciting events happening across the spectrum of Army Aviation.



Major General Bobby J. Maddox
Commander, U. S. Army Aviation Center
Fort Rucker, AL

This article, "Warrant Officer Senior Course," and the article beginning on page 5, "Aviation Pre-Command Course," complete an eight part series describing how the Aviation Center has developed commissioned and warrant officer training courses as a result of the formation of the Aviation Branch. The first, "Training the Aviation Warrant and Commissioned Officers," appeared in the March 1984 issue and presented an overview of the emerging training plan. In April the Aviation Digest covered the "Aviation Officer Basic Course" and the "Warrant Officer Candidate Military Development Course." In May the series continued with "The Officer/Warrant Officer Rotary Wing Aviator Course," commonly referred to as "flight school." This course provides training in basic combat flying skills and in Aviation employment doctrine. June coverage included the "Aviation Officer Advanced Course" and the "Aviation Warrant Officer Advanced Course." Copies of any of the articles in this series can be obtained by writing to, Editor, Aviation Digest, P.O. Drawer P, Ft. Rucker, AL 36362; or by calling AUTOVON 558-3118.

Warrant Officer Senior Course

illustration by Paul Fretts

Ms. Mary E. Brown
Directorate of Training and Doctrine
U.S. Army Aviation Center

THE Warrant Officer Senior Course (WOSC) is the capstone course for the professional development of all warrant officers regardless of military occupational specialty (MOS). A very small percentage (7 to 10 percent) are offered the opportunity to attend this final phase of developmental training for warrant officers.

The course provides selected senior warrant officers with a broad understanding of the integral organization, functions and operations of the Army as they affect major, joint and combined commands. The scope of the course develops staff, leadership and management skills necessary for serving in critical specialty related positions which require a broad perspective of

command and staff functions and relationships. Graduates of the WOSC are assigned to 4-A positions (special advisory position on higher level staffs) throughout major commands in the Army.

Background

The U.S. Army Aviation Center, Ft. Rucker, AL, has been the forerunner in warrant officer professional development training since the late 1960s. Prior to the Haines Board Study in 1966, professional development training for warrant officers did not exist. As a result of the Haines Study, intermediate and advanced courses were implemented for warrant officer specialties Armywide. However, due to the low densities in some MOSs, the Army soon realized that separate intermediate and advanced courses for each MOS could not be justified.

Therefore, in 1972, 11 warrant officers from various nonaviation specialties were invited to attend the Aviation Warrant Officer Advanced Course on a trial basis. This trial proved successful and in 1974 the Department of the Army directed the Training and Doctrine Command, Ft. Monroe, VA, to designate the AWOAC as the Warrant Officer Senior Course. The Department of the Army further directed that the course be restructured as a branch immaterial course with all warrant officer specialties provided allocations for attendance. At this same time, all other specialty specific warrant officer advanced courses were discontinued. The intermediate courses for all warrant officer specialties were then designated as advanced courses. Therefore, the Warrant Officer Senior Course as it exists today evolved from the original Aviation Warrant Officer Advanced Course and now serves all warrant officers regardless of specialty.

Selection

Warrant officers are usually selected to attend the WOSC between the 7th and 15th year of service. This applies to both the Active duty and Reserve Component warrant officers. Additional prerequisites are that the warrant officer must be:

- serving in the grade of CW3 and not on a promotion list for advancement to CW4;
- or in the grade of CW2 and on a promotion list for advancement to CW3.

Active duty warrant officers incur an obligated service time of 2 years. Selection for attendance at the senior course is made by a selection board which meets annually. In addition to the prerequisites mentioned previously, a warrant officer's selection to attend the course indicates that he or she has certain qualities above and beyond the prerequisites for the course. The selection system operates to identify the warrant officers best qualified to attend the senior course by virtue of their potential value to the Army and their ability to absorb and profit from the educational experience. Specifically sought as selectees are those individuals demonstrating the greatest capacity for judgment, skill, maturity and independence of action.

Selection for attendance at the senior course is a distinctive mark in the warrant officer's career. It prepares warrant officers to make maximum contributions to the Army. While attending the course, the interaction with warrant officers from other specialties provides an opportunity for each student to gain an understanding of how his or her specialty correlates to the immediate and surrounding environment as well as to the entire Army. The experiences gained through interaction with warrant officers of other specialties in combination with the educational experiences afforded in the senior course prepares the WOSC student to perform in critical 4-A positions.

Resident Version

In June 1984, the Warrant Officer Senior Course became a 19-week program of instruction (POI) making it a temporary duty (TDY) course. Previously the course length was 21 weeks and 4 days, a PCS (permanent change of station) course. It is taught in residence at the Army Aviation Center.

Also, effective in November 1984, resident course starting dates will increase to 10 times per year rather than the previous twice per year start dates. A new class will begin about every 5 weeks. The increase in start dates will allow the Military Personnel Center (MILPERCEN) flexibility in coordinating TDY attendance at the senior course.

Current Curriculum

Students of WOSC Class 84-1 completed the first iteration of the recently revised senior course POI on 4 June 1984. A panel consisting of CW3/CW4 warrant officers from several specialties assisted in the

development and revision of the curriculum of the new WOSC. This curriculum reflects the training needed by the select group of senior course graduates who will serve in the critical 4-A positions identified by MILPERCEN. The focus of the course moved from a "nuts and bolts" approach to training to presenting a broader perspective of higher-level management and staffing skills; communication skills; military organization, doctrine and tactics; and Army systems. The funded college electives program, previously included in the course, ended with class 84-1.

Major subject areas addressed are:

- *Military History:* Provides the student with a procedure for studying military history and applying "lessons learned" in future operations.
- *Staff Skills and Communicative Arts:* Improved skills in oral and written communications.
- *Leadership and Ethics:* Provides a general knowledge of the principles, philosophies, concepts and scope of the leadership and ethics needed by the warrant officer.
- *Management Skills:* Gives the knowledge to apply management techniques and control systems, operations research and systems analysis.
- *Management of Army Systems:* Covers the Army financial management system, financial responsibilities of an Army officer, to include budgeting and resourcing processes within the Army and their relationship to the Department of Defense program structure, problems faced by an Army officer at depot, installation, activity and other comparable-level organizations.
- *Logistics Systems:* Studies supply operations, maintenance management/operations and logistical operations.
- *Personnel Management Systems:* An overview of the enlisted, warrant officer, commissioned officer, specialty proponents and civilian personnel management systems.
- *Unit Status Report:* Reviews its effect on various agencies, materiel readiness, and the impact on commanders' decisions and methods of organizing and conducting inspections.
- *Army Safety Systems:* Provides a general overview of the system and its application at unit level.
- *Army Training System:* Requires WOSC student to complete the manager's level Battalion Training Management System Workshop.
- *U.S. Military Organization Doctrine and Tactics:* Covers command and staff organization, fighting the combined arms battle, current organization and force structure, national security and threat.
- *Strategic Balance:* Reviews the operating assumptions and interaction patterns of states; general poblems of war, technology, ideology, trade, global environment, international organization and law.

Nonresident Version

The nonresident version was primarily designed to support Reserve Components training but is available for enrollment by Active duty warrant officers as well. Prerequisites and enrollment procedures for the nonresident version can be found in DA Pamphlet 351-20, "Army Correspondence Course Catalog."

The nonresident version may be completed through any one of the following:

- Correspondence.
- Combination of correspondence and U.S. Army Reserve (USAR Schools version).
- USAR Schools version.

In each case the instruction provided parallels that presented in the resident course to the greatest extent possible.

Senior warrant officers assigned to 4-A positions on high level staffs will require many skills not normally associated with their basic specialties. They will have to be not only knowledgeable, but also proficient, in communicative arts and staff procedures. They will have to interact with military personnel up to and including general officers. They also may be required to interact with high level civilian officials. Warrant Officer Senior Course graduates are prepared to handle such requirements with expertise and efficiency. They epitomize the high standards of professionalism and performance associated with the U.S. Army Warrant Officer Corps.

ABOUT THE AUTHOR

Ms. Mary E. Brown is an education specialist assigned to the Officer/Warrant Officer Professional Development Team, Course Development Division, Directorate of Training and Doctrine. She has been intimately involved in the recent review and revision of the Warrant Officer Senior Course. She has worked in the training developments area for 7 years. Prior to that she was an instructor in a technical college and later worked in the field of educational administration.

Aviation Pre-Command Course

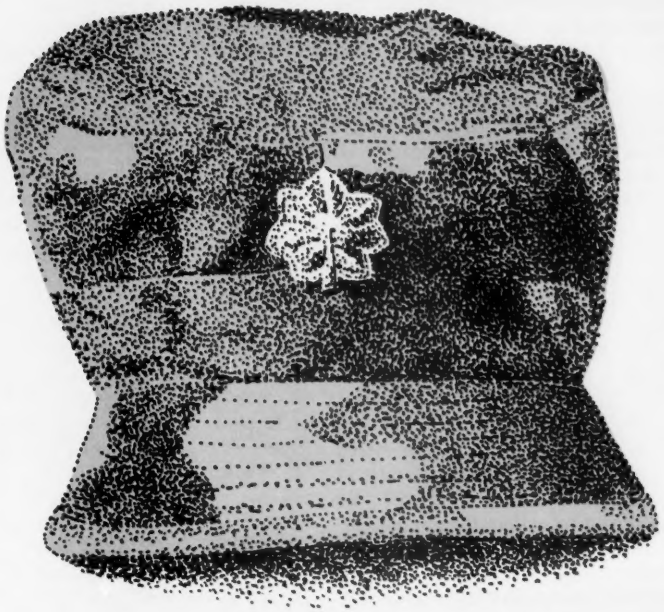


illustration by Paul Fretts

Major Frank A. Wynne
Department of Combined Arms Tactics
U.S. Army Aviation Center
Fort Rucker, AL

THE PRE-COMMAND Course (PCC) for Aviation battalion and brigade commanders is taught in three phases as are all pre-command courses. What is important is what the Aviation Center, Ft. Rucker, AL, has accomplished to improve its 2-week resident phase (Phase II) since branch implementation. As a member of the combined arms team, it is imperative that Aviation battalion and brigade commanders receive the most current tactical and support doctrines available prior to their assuming command.

The first step in improving the PCC was to survey current commanders to determine what information would have been helpful to them before they assumed command. We then asked the same question of former battalion commanders.

Second, guidance from the Combined Arms Center, Ft. Leavenworth, KS, was incorporated and a course outline was developed, and is as follows.

The first day of instruction consists of a welcome by the Aviation Center command group to emphasize the importance of the PCC and to welcome the attendees to Ft. Rucker. A class on the Army of Excellence force structure is provided to depict how the Aviation units will be organized in the future. The students are given an update on the capabilities and limitations of new equipment. Threat classes presented include air-ground threat to include the type of equipment found in the Russian, North Korean and Chinese armies as well as an update on the nuclear, biological and chemical threat.

On day two, a review of AirLand Battle is presented to demonstrate how Aviation assets will be used in the deep attack, close-in battle offense and defense, as well as the rear battle.

Day three includes joint Army and Air Force operations and how a forward arming and refueling point is used, moved and protected. The aeromedical facility teaches how medical evacuation will operate on the battlefield. The class on combat logistics will inform our future commanders how and when the various classes of supplies will reach their units. The doctrinal literature class is a review of any and all literature that is being revised or created.

During day four, commanders are reacquainted with the Training Management System to aid them in the planning of training for their brigade or battalion. Budget management will give an overview on how best to manage those critical funds provided each unit. Each student will choose an elective that best suits his/her needs.

Day five is essentially supply oriented. The student is reacquainted with Army supply procedures to include how the Unit Status Report is used.

During day six, Aviation maintenance is discussed in detail to aid commanders in managing the maintenance program for equipment within their units.

Day seven is devoted to the Personnel Management System to include how and where Aviation personnel will be trained and the extent of training they receive.

Day eight is primarily safety oriented. The student will be given an overview of the Army Safety Program. There will also be a discussion on current Aviation mishaps and what commanders can do to reduce accidents. The class on Women in the Army is designed to teach our commanders the role of women in today's Army, including the types of units to which women can be assigned.

Day nine discusses the liability limitations the commander has at his disposal in the event of destruction of Army equipment. The Command Sergeant Major (CSM) Seminar is a forum where the students meet with the current brigade and battalion CSM to discuss their roles as the senior enlisted person in the battalion.

During the last day, a battalion commander is invited to address the class on the day to day challenges that face battalion commanders. Ample time is provided at the end of the battalion commander seminar for a question and answer period.

A sample training schedule, by hour, of how a typical PCC would run is shown at right.

Although this is a 2-week structured course, every effort is made to personalize the course to best suit the needs of our future commanders. During inprocessing, the students are provided a list of electives which include, but are not limited to:

Helicopter Gunnery Training. A briefing on contact, combat skills and gunnery training given to aviators during their transition into the AH-1 Cobra attack helicopter. The command designee also receives an information packet which includes the student handout material for the AH-1 transition students.

Lightweight Doppler Navigation Set. A briefing on the operation characteristics; the navigational capabilities and limitations; and the types of Army aircraft in which the AN/ASN-128 Lightweight Doppler Navigation Set (LDNS) may be installed and used. Additionally, students will be briefed on LDNS training at the Aviation Center and the expected use of this equipment by Aviation field units.

Aviation Board. A briefing on the history, mission, organization and current test programs of the Board. The Board's interface with the Aviation Center and other Training and Doctrine Command boards, and a typical test cycle are described.

TRADOC System Managers. An office call with the staff of the TRADOC System Managers for: Utility Helicopters, Attack Helicopters, Scout Helicopters or the HELLFIRE Missile System.

The material in the course will change frequently. As the Army changes and updates doctrine and equipment, the course will be modified to reflect those changes. Aviation commanders are encouraged to maintain close contact with the Aviation Center to ensure they have the latest information on doctrine and equipment.

Because Army Aviation leaders must be flexible, the Pre-Command Course teaches leaders to look beyond the current battle. They must learn to exploit opportunities that tactical success will create. Our leaders must think faster than the enemy does so they can avoid enemy strength and quickly attack enemy vulnerabilities.

The commanders that we train must be able to communicate the role of Army Aviation on the battlefield to the other members of the combined arms team. Our challenge is great. We have many tasks to train in a short period of time. The Aviation Center is dedicated to producing the best combined arms commanders possible.

DAY 1

15 minutes	4th Bn/DCAT "WELCOME"
15 minutes	Inprocessing
15 minutes	"WELCOME" by Command Rep
1 hour	Aviation Center Briefing
1 hour	Aviation Organization Update (DCD)
2 hours	Flight Standardization (DES)
2 hours	Air/Ground Threat to Army Aviation (C/A)
2 hours	NBC Threat to Army Aviation (C/A)
8 hours + 45 minutes	

DAY 2

1 hour	Review of AirLand Battle Doctrine (C/A)
2 hours	Deep Attack (C/A)
2 hours	Close-In Battle Offense (C/A)
2 hours	Close-In Battle Defense (C/A)
1 hour	Rear Battle (C/A)
8 hours	

DAY 3

1 hour	Air Force NOW - JAAT (USAF)
1 hour	FARP Operations (C/A)
2 hours	Medical/Maintenance EVAC
3 hours	Combat Logistics (Cl I, III, IV & V)
1 hour	Doctrinal Literature
8 hours	

DAY 4

1 hour	MILES/AGES (C/A)
3 hours	The Army Training System (C/L)
1 hour	DOFT Briefing
1 hour	Budget Management (C/L)
2 hours	Elective
8 hours	

DAY 5

4 hours	Property and Supply Responsibilities (C/L)
3 hours	Unit Status Report (C/L)
1 hour	Installation/Community Responsibilities (DIC)
8 hours	

DAY 6

4 hours	The Army System of Maintenance (C/L)
3 hours	Aviation Maintenance Management
1 hour	1st Aviation Bde Commander
8 hours	

DAY 7

2 hours	6th Bn Briefing
2 hours	Aviation Personnel Management
2 hours	Aviation Enlisted Personnel (DOET)
1 hour	Reserve Component Issues
1 hour	USAAVNC Chief of Staff Briefing
8 hours	

DAY 8

1 hour	Introduction to Safety Center/ Army Safety Program (ASC)
1 hour	System Review (ASC)
3 hours	Current Mishap Review (ASC)
2 hours	Aviation Safety Officer (ASC)
1 hour	Women in the Army
8 hours	

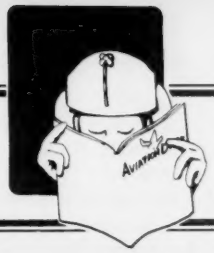
DAY 9

2 hours	Liability Limitations (ASC)
2 hours	CSM Seminar
3 hours	Aviation Medical Considerations
1 hour	Elective
8 hours	

DAY 10

3 hours	Aviation Bn Commander Seminar (DCAT)
1 hour	Critique
15 minutes	Outprocessing
4 hours	Elective
8 hours + 15 minutes	

VIEWS FROM READERS



Editor:

Having just read the February 1984 issue of *Aviation Digest,* I thought I'd write expressing concerns I've yet to see raised on the subject of helicopter air-to-air (combat) (page 22, February 1984 issue).

The sentence, "I pulled in all available power and nosed the AH-1 Cobra over..." sent shudders through me. Has anyone had the nerve to express concerns over the extreme hazards of air-to-air combat in the teetering rotor helicopter? Has *Aviation Digest* reported that the Navy Test Pilot School at Patuxent River, MD, suspended all flights in teetering rotor helicopters that deal with handling qualities testing because of the mast bumping accidents experienced? (The USNTPS currently has AH-1S and OH-58 helicopters on loan from the Army.) Are you familiar with the latest TPS in-flight breakup due to mast bumping where the instructor pilot survived by bailing out? Are you aware of a theory making the rounds that the AH-1S could be more susceptible to mast bumping than the AH-1G?

Helicopter air-to-air is a real possibility and if you're jumped by an enemy, survival is the key no matter what type helicopter you're flying. However, I get this image of Russian Hind pilots realizing that should they run across an AH-1, OH-58 or UH-1, all they have to do is get the pilot to "jinx" the wrong way and they can watch the blades come off, giving them a "kill" without firing one shot! Now *that's* scary!

I'd really like to see something written by these air-to-air enthusiasts and trainers giving the rest of the Army the horrors as well as the white-scarf excitement of teetering rotor flying while engaged in air-to-air. In spite of the (Army) Chief of Staff's recent messages regarding aircraft accidents in the Army, there will be some young live-forever hotshots who will try some of these maneuvers and somebody's going to be a grease spot in the forest when the rotor comes off. Warnings must be given in all these articles on the dangers involved in this type of flying.

The Russians may be willing to accept casualty after casualty during training but we aren't. We have to continually remind our pilots of all the hazards involved in various types of training. We can't assume that since everybody saw the mast bumping film in 1983, that in 1985 they still remember what they saw.

MAJ (P) Michael V. Stratton
Experimental Test Pilot
USA Aviation Engineering
Flight Activity
Edwards AFB, CA

• Editor's Note. The operational concept for air-to-air combat has recently been approved by the Commanding General, U.S. Army Training and Doctrine Command, and will be published as doctrine in FM 1-107, "Air-to-Air Combat." This manual is currently in the final draft stage of development and has been forwarded to the Combined Arms Center for approval. As such, the doctrine and air combat maneuvers contained in the draft are intended for review purposes only and do not constitute approved U.S. Army doctrine. Statements to this effect appear on the front cover of the draft and at the beginning of Chapter 6, Air Combat Maneuvers. Additionally, the air combat maneuvering chapter warns aviators not to exceed either their own or their aircraft limitations. In the discussion of certain maneuvers, aviators are also warned to maintain positive G loading and aircraft trim.

Helicopter air-to-air combat is a reality. No one is saying that we are willing to accept "casualty after casualty" in training. We are not. But we cannot wait until we are decisively engaged in air-to-air combat to decide whether we should have trained for it. If the enemy's weapons do not kill us, we will kill ourselves by attempting any maneuver, trained or not, to avoid enemy fires. For further information, contact Doctrinal Literature Division, Department of Combined Arms Tactics, U.S. Army Aviation Center, Ft. Rucker, AL 36362, or call AUTOVON 558-6010/2452.

Editor:

The U.S. Army Aviation Branch is now well under way to establishing new doctrine and career-enhancing assignments for its commissioned officers. As all the dust from rhetoric and literature settles to form progessions in our new careers, I can't help but be slightly pessimistic for the outlook of the commissioned Aviation maintenance officers. In a recent article the *Aviation Digest* published on "Training the Aviation Warrant and Commissioned Officer," the author emphasized the need for an "ACO to supervise aircraft maintenance." However, in review of the career progression of a young officer aviator there is no mention of AMOC [Aviation Maintenance Officer Course] training or criteria for entry into Aviation maintenance. This is a serious short-sightedness. Aviation maintenance is the backbone of Army materiel readiness, yet in Aviation it appears that our 15/71 or 15T officers are perceived as less qualified Army Aviation commanders and aviators because they possess an additional specialty. For example, under the Division 86 concept, the Aviation maintenance officer (03) will command a platoon in excess of 80 soldiers and receive platoon leader

credit. Our 15 specialty counterparts will command a 20-man platoon (mostly warrant officers) and receive command time. Who has the most challenging assignment? Additionally, as a 15T can I compete for company command of an attack helicopter company, a lift company or a general support company? Will the battalion commander consider a 15T equally for command or will the maintenance identified (T) handicap an officer from attaining more career enhancing assignments?

In recent DA and FORSCOM ODP changes to affect assignment of officer against TOE authorizations, it was directed that "major subordinate command and separate battalions retain the right to assign their officers as they see fit to fulfill mission requirements except captains who are advance course graduates without command experience who will receive priority in consideration for company commands." Clearly this guidance does not suggest allowing a unit's only 15T captain to assume command of a lift platoon/company or does it?

In closing, I think that the decision-makers in Army Aviation should examine "maintenance officers career" management and scrutinize who really will be doing Aviation maintenance.

CPT Robert P. Birmingham
Hunter Army Airfield, GA

• The *Aviation Digest* received the following response from the Directorate of Training and Doctrine at the Aviation Center to Captain Birmingham's letter:

The Aviation Maintenance Officer Course is not addressed in our series of articles because it falls into the category of "functional" vice "professional development" courses. As such, it is similar to the various advanced aircraft transition courses or instructor pilot courses in that only selected individuals attend the courses. The courses prepare attendees to perform certain strictly defined functions. Professional development courses on the other hand are attended by all officers and prepare attendees to perform a wide range of comand and staff functions.

Your question reference Aviation unit command credit was discussed with the Deputy, Aviation Proponency Office, USAAVNC, Ft. Rucker, AL. His response was that the 15T or 15/71 specialty codes should in no way limit an individual's chances to command an Aviation lift, or attack helicopter unit provided the officer is otherwise qualified for such command. This will be clarified as the progression is made from Division 86 TOEs to the follow-on Army of Excellence TOEs. Also, under the proposed Army of Excellence TOEs, the Aviation maintenance unit commander will be an 04. Thus, an officer holdings SC 15T or SC 15/71 may have an opportunity to command at both the 03 and 04 level.

Should anyone have additional questions reference the role of Aviation maintenance officers in emerging Aviation organizations you may address them to: Commander, USAAVNC, ATTN: ATZQ-P, Ft. Rucker, AL 36362.

Editor:

A recent development in fragment protection may be of interest to your readers.

Ballistic protective goggles lenses for the standard sun, wind and dust goggles have entered production. These are similar to comparable goggles fielded by the Israelis in 1976. Such goggles have been shown, in combat, to have potential for reducing eye casualties by about 50 percent for tank commanders and others exposed to armor debris resulting from projectile impact or small fragments from explosive projectiles. These lenses are available as replacements only. They were listed (as of 3 April 1984—check your Army Master Data File), as:

Lens, Ballistic, Class 4, Neutral Gray, NSN 8465-01-109-3996

Lens, Ballistic, Class 3, Clear, NSN 8465-01-109-3997

As always, NSNs may be changed without notice, but the first consignment has been manufactured. Eventually 100,000 will be manufactured unless demand supports more. Ballistic goggles worked for the Israelis. They will work for you also, but if you wait until you are on movement orders to requisition them, it will be too late.

John Brand II, Mikey Carroll
and Mark Reches
U.S. Army Materiel Systems
Analysis Activity
Aberdee Proving Ground, MD

Editor:

First of all I would like to introduce myself, Major Jorge Sanjines Pellegrini, Peruvian Air Force, former Ft. Rucker student class 74; presently working as operations at the Special Force Group, flying helicopter gunships.

I would like to know if there is a chance for our group to subscribe to your *Army Aviation Digest* regular issues? We are most interested in finding information pertaining to attack helicopters and their weapon systems.

Also, if it's possible, send me some information about Ft. Rucker school from which I feel very proud to be a former student. Thanks to the superb instruction I received and to the patience of my instructors, I had recently flown my 6,600 accident free flying hours; please through these few words, and with my poor English, I would like to thank and give my appreciation to all the people responsible for R.W. Course 74, and also let them know that in Peru they would always have a friend.

I would like to thank in advance, too, the *Army Aviation Digest* for your time and concern.

Jorge Sanjines Pellegrini
Fuerza Aerea Del Peru

Editor:

Once again the Army has failed to learn the lessons of history. While I enjoyed the article in the January 1984 *Digest*, "Pigs and Rice in the OK Corral," by CPT Kevin G. Scherrer, it did not go far enough.

The Army Air Corps began World War II with fighters and bombers armed

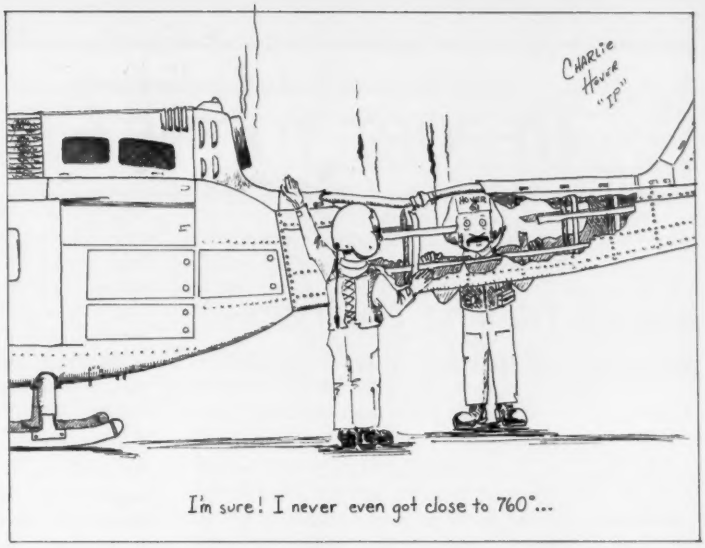
with only two to four rifle-caliber machineguns little changed from World War I (much like the equipment currently used to equip UH-1s and UH-60s). Other combatants were arming their first-line aircraft with 8 and sometimes *12* machineguns or 2 rapid-firing cannons plus 2 machineguns. It took some harsh lessons before deep thinkers came up with 6 to 8 .50 caliber guns on their fighters and 10 to 13 .50 caliber guns on their bombers—not to mention self-sealing fuel tanks and armor.

Granted, helicopters are not fighters or bombers but the parallel is the same. Warsaw Pact nations arm even their troop-carrying helicopters far heavier than we. CPT Scherrer writes a believable scenario—chilling, in fact. However, tactics are not the answer—and *neither* is landing and setting up a ground defense against heavily armored Hinds with 7.62 mm pop guns! All the far-sighted low-level flight tactics and electronic marvel warning devices are worthless when adversaries have aircraft that are faster, at least as maneuverable, and heavier armed and armored.

When are the elephant-level thinkers going to wake up and face reality? When are we going to rearm our UH-60s and UH-1s with even *hand-held* heavy caliber weapons? What's wrong with some lightweight state-of-the-art 20 mm chin turret weapons operated by the copilot?

The current hot items that have staffers and bean-counters all excited are OH-58 LTE (loss of tail rotor effectiveness), something that's plagued OH-58s since they were built and the seat the PIC occupies (come on guys, now we're talking about check rides for *each seat!* What's next?). How many burning slicks littering landing zones will it take to come up with adequate armament? Face it: We aren't going to have the time they had in World War II—we have to do something NOW.

CW4 James P. Fazekas
APO New York



I'm sure! I never even got close to 760°...

Editor:

I recently read your article concerning COL Stewart, the first Army aviator to earn astronaut wings. It is with feelings of irritation and admittedly a certain amount of envy that I write this letter.

The COL Stewarts' of this world are atypical. They get to do the things that the rest of us only get to wish for. I am not trying to belittle his accomplishment or to say that he did not earn his position. My point is that there are a lot of worthy Army aviators out there that will never get their names in your magazine. Most of these guys are at places like Ft. Campbell, Ft. Hood or Germany. They're flying around at less than 100 feet, often in the pitch black of the night and often, though they seldom admit it, they're scared. This is not glamorous; but when Congress funds Army Aviation it's because of these guys and the way they do their jobs.

What is worse is the fact that within the past 3 months, three Army Aviation personnel have given their lives in Central America and nothing has been written about them in your publication. It's time you recognized the people who carry the ball in Army Aviation. A good place to start would be a memorium to the three aviators who died in Honduras and Grenada.

CPT Edward P. Napier Jr.
AOAC 1-84
Ft. Knox, KY

Editor:

Would you please send me a copy of each of the following articles in your magazine?

- "How to Crash by the Book," September 1977.
- "Oh-58 Tail Rotor Stall," November 1978.
- "Tail Rotor Breakaway," June 1980.
- "OH-58 Power Droop," December 1982.
- "OH-58 Tail Rotor Control Power," March 1983.

Thank you for your assistance.

MAJ Darryl Fontenot (Ret.)
De Ridder, LA

Articles from the *Aviation Digest* requested in these letters have been mailed. Readers can obtain copies of material printed in any issue by writing to: Editor, *U.S. Army Aviation Digest,* P.O. Drawer P, Ft. Rucker, AL 36362

Branch Training Team and Aviation Standardization and Training Seminar

THE ESTABLISHMENT of the Aviation Branch has had some profound effects for those of us involved in Army Aviation. Of course, almost everyone is familiar with the changes in personnel management for the Aviation related specialties and military occupational specialties; but, the most dramatic result has been the centralized responsibility for the formulation of tactics and doctrine for the employment of Aviation assets.

The U.S. Army Aviation Center at Ft. Rucker, AL, has been working overtime to develop and publish tactical and doctrinal guidance for Army Aviation. However, the Aviation Center realizes that Aviation units in the field have already developed and are using many techniques that would readily lend themselves to standardization and implementation throughout the Army. To prevent duplication of effort and to speed the developmental process, it is vital that the new branch learns from the experience of field units.

It is also equally important that once the development is completed the final product be rapidly sent to the units in the field.

There are now two operational programs designed to facilitate this information exchange between the Aviation Center and units in the field. These programs are the Branch Training Team (BTT) and Aviation Standardization and Training Seminar (ASTS). The BTT is organized to discuss doctrine, employment, organization and how to fight. The ASTS will cover areas such as crew tactics, aircraft employment, crew drills, Aviation Branch or any such subjects as requested by the unit. This article takes a close look at each program. It provides some information such as how to schedule and coordinate a visit, team composition and subjects covered.

Branch Training Team

The Branch Training Team was developed by the Directorate of Combined Arms Tactics at the Aviation Center to expedite the standardization of Army Aviation tactics and doctrine. The BTT is further organized to pave the way for the exchange of information between the Aviation Center and Aviation unit commanders in the field. The BTT will act as a two-way conduit for doctrine in that it will project emerging doctrine to the field faster, while at the same time, allowing the field to direct the Aviation Center in the refinement of new and existing doctrine.

The establishment of Army Aviation as a separate combat arm in 1983 resulted in the centralization of proponent responsibility for all Aviation matters. For the first time, employment doctrine for Aviation assets would be formulated at a single location. This centralization of responsibility for Aviation matters at the Aviation Center will make possible for development and implementation of standardized Aviation tactical measures and employment doctrine Armywide.

The BTT is a school-wide effort to provide information to branch units or organizational elements on proponent doctrine, employment, organization, Aviation Branch proponency and how to fight techniques. The BTT is designed to be an assistance and data gathering program only. The team will not conduct any evaluations nor will any unit elements be inspected. The BTT will focus primarily on units at brigade level and below.

The team will generally visit a unit only on request. Some visits may be scheduled at the school's initiative, but all will be conducted on a noninterference basis.

When the unit has determined that a visit is desired, a point of contact (POC) from the unit should be designated. The POC will coordinate directly with Evaluation Division, Directorate of Evaluation and Standardization (DES). The unit POC will consolidate requests from each unit and coordinate the schedule, time, locations, etc., with the DES representative.

BTT visits will usually last 1 day and will normally consist of four members who are subject matter experts (SMEs) as required to meet the projected needs

of each proponent unit to be visited. The BTT will have the capability to teach subjects within the realm of tactics, doctrine and general military skills.

The BTT will provide a forum for exchange of doctrinal, combat developments, and training ideas or concepts. It can operate either in a classroom environment or a small unit seminar, teaching such subjects as AirLand Battle doctrine, Aviation tactics and employment. (The team also will be capable of discussing significant changes that are occurring in commissioned officer, warrant officer, and enlisted career management and professional development.) Prior to its visit, the team may furnish topic areas under review at the Aviation Center for discussion with unit leaders during the visit. In special cases, the BTT can essentially perform functions normally associated with New Organization Training Teams.

Aviation Standardization and Training Seminar

The Aviation Standardization and Training Seminar is an assistance oriented program developed by the Directorate of Evaluation & Standardization to improve training, safety, standardization and readiness throughout Army Aviation. The ASTS is further designed to provide a means of information exchange between the Aviation Center and Aviation unit commanders and trainers. The feedback collected from field units is used to upgrade training programs at the Aviation Center and the Aviation Logistics School at Ft. Eustis, VA.

Since 1979, DES has been conducting Aviation Center Training Analysis and Assistance Team (ACTAAT) visits to Active and Reserve Component Aviation units worldwide. Its primary mission was "to establish and maintain a meaningful, productive dialogue between Training and Doctrine Command (TRADOC), Ft. Monroe, VA, schools and field units and to collect data pertaining to the effectiveness of training at TRADOC institutions."

Through the ACTAAT visits, Aviation units had an opportunity to provide input into Aviation training programs established at TRADOC schools. This input was used to increase the effectiveness of TRADOC courses and enhanced TRADOC's ability to better serve the training needs of units in the field. The ACTAAT also provided the Aviation Center with a forum for the mutual exchange of doctrinal, combat development, and training ideas and concepts. This information was used to increase the effectiveness of Aviation publications, policies and procedures.

In addition to the ACTAAT, DES initiated assistance visits to Reserve Component Army Aviation units in 1975. These visits were in the form of instructor pilot/standardization instructor pilot (IP/SIP) seminars and were conducted by DES SIPs and Aviation Center subject matter experts. The seminars proved beneficial, enhancing Aviation training and standardization in the Reserve Components. The success of the Reserve Component seminars prompted the expansion of the program to Active Army units. The ASTS is the result of combining the ACTAAT and the IP/SIP seminars.

The ASTS is designed to be an extremely flexible organization. Subjects covered, training conducted, length of the visit and team membership vary with each visit, based on the specific request of the unit visited. The ASTS is intended to be for *assistance only*. Team members will *not be evaluators* but will act as trainers and instructors in their respective area. A report on the unit will not be written and gradeslips for any training flight will not be issued unless requested by the unit. Thus far the ASTS has visited Ft. Campbell, KY; Ft. Lewis, WA; Alaska; Ft. Riley, KS; Ft. Carson, CO; U.S. Army Europe; Turkey; Korea; and Ft. Ord, CA.

An ASTS visit will not be scheduled unless it is first requested by the unit. Ideally, the visit would be scheduled about 6 months prior to the unit's Aviation Resource Management Survey. The request should be submitted 4 to 6 months ahead of the desired visit date.

Once the visit has been scheduled the installation should designate a point of contact. The POC will coordinate directly with the Aviation Center. Each unit should closely analyze its training situation and transmit specific requests to the POC who will consolidate these requests and submit them to the Aviation Center. When topics for the ASTS visit have been identified the POC should prepare a training schedule of subjects to be covered, units to be visited and locations. This schedule should be incorporated in each unit's weekly training schedule to allow for maximum participation.

Experience has shown that a visit to a battalion sized unit will last about 2½ days. This will vary, of course, with the specific needs of each unit.

Membership of an ASTS is seldom the same for two visits. The membership of each visit is tailored to fit the specific needs of the unit visited. A typical ASTS team might consist of the following:

Team Chief—Conducts seminars and discussions with unit commanders. Is usually 05 or above.

Team Coordinator—Coordinates training assistance requirements with the visited units' POC, forms the team and assigns subjects, coordinates with various agencies for SME representation.

Instructional Systems Evaluators—Collect data pertaining to the quality of instruction at TRADOC schools.

Aviation Life Support Equipment (ALSE) Representative—Conducts ALSE and courtesy inspections and classes.

Aviation Safety Officer—Conducts safety courtesy inspections and seminars.

Maintenance Test Flight Evaluators (MTFE)—Conduct MTFE seminars and training flights.

Standardization Instructor Pilots—Conduct Aviation related classes, conduct aircraft specific discussions and conduct training flights.

As stated earlier, the composition will be based on the needs of the units. MTFE, SIP and SME support would depend on the assistance requested by the unit.

Team membership is not limited to the Aviation Center. Regular team members are the MTFE and ALSE personnel from the Aviation Logistics School. Other team members have come from Ft. Lee, VA; New Cumberland Army Depot; Materiel Development and Readiness Command; Army Aviation Systems Command; and the Army Aeromedical Center.

Units should request any assistance needed. The team coordinator will tailor the team to match the requested assistance if suitable assets (personnel, funds, etc.) are available.

Possible subject areas for training.

- Performance planning
- Instrument flight rules and visual flight rules flight planning
- Aerodynamics
- Instructor pilot fundamentals
- Army regulations (i.e., AR 95-1)
- Aircrew training manuals (ATMs)
- Test flight procedures
- Threat briefing
- Courtesy ATM and flight records checks
- Crew tactics
- Aircraft employment
- Crew drills
- Commanders' seminars
- Aviation Branch briefing
- Aviation proponent responsibilities
- Night vision goggles training and employment

Academic training may cover any Aviation related subject requested by the unit. The format for this instruction can be either formal instructional periods, informal question/answer periods, group seminars/discussions or individual instruction. Possible subject areas might include items listed at bottom of the left column.

This list is not intended to be all inclusive. Units will have an opportunity to request any assistance required through precoordination with the ASTS coordinator. Assistance requested will be provided if assets are available.

Flight training also can be requested by the unit. It can consist of tactical maneuver demonstrations, maintenance test pilot equivalency flight or a flight evaluation (only at the request of the unit commander). Experience has shown that actual flight training should be kept to a minimum. This is due to the limited time available for training and to present the maximum amount of training to the maximum number of people. For the most part, a flight in an aircraft can benefit only one or two people, but a class or seminar can benefit more than 100 (more than 120 people attended one class on aerodynamics). Training flights requested by the unit will be flown, but the emphasis is normally on academic instruction.

The BTT and the ASTS serve an important function for the Aviation Center as well as the entire Aviation community. Their purposes are to provide a means of information exchange between our Aviation units in the field and TRADOC. They carry the latest developments to the field and collect good ideas from the field to be used in the development of tactics, doctrine and improved courses of instruction.

The BTT and the ASTS are available to any Aviation unit that desires a visit. The BTT will normally consist of four people and will cover subjects such as doctrine, employment, organization and how to fight. The ASTS will consist of the required number of people to meet the unit's needs. The topics the ASTS covers are based on what the unit requests. The BTT and ASTS are available either separately or in combination. To schedule a visit for your unit or to obtain more information, contact the team coordinators by calling AUTOVON 558-4691/6571 or by writing the Directorate of Evaluation and Standardization, ATTN: ATZQ-ES-E, Ft. Rucker, AL 36362.

The BTT and ASTS will help to bridge the communication gap between our Aviation field units and TRADOC—use them!

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3504 or commercial 205-255-3504. After duty hours call Ft. Rucker HotLine, AUTOVON 558-6487 or 205-255-6487 and leave a message.

AVIATION PERSONNEL NOTES

The Aviation Branch Transfer—
Is this your signature?

Next to Egyptian hieroglyphics, Chinese calligraphy and physician's orders, the common signature (scientific name: Illegibus Maximus) is one of the most beautiful, elaborate and beloved quirks of man's attempt to communicate and/or leave his mark on time and space.

In today's society, the signature is required to successfully complete just about any transaction. Consequently, man has had ample opportunity to develop his/her signature into an art form and extend it to new horizons of uniqueness and illegibility.

A case in point is the recent Aviation Branch implementation letter that each commissioned aviator in the U.S. Army has received. On the first page of this letter was typed the aviator's name and address. The aviator was asked to sign the enclosure of the letter and return the *letter* and enclosure to Military Personnel Center (MILPERCEN).

Unfortunately, a few replies were returned with just the last page complete with a signature—minus a signature block.

It is my job to process these letters and begin the aviator's transition into the new Aviation Branch. HOWEVER, while I have come to enjoy examining the diverse artistry that crosses my desk each day (and the fact that the above mentioned works of art add a certain *savoir faire* to my work area), I CANNOT process what I can't read.

Even though my respect for Egyptologists, pharmacists and aviators has trebled, and my decoding expertise has expanded tremendously, a few of these aforementioned replies are still beyond my capabilities.

If you recognize your signature among the ones listed at right, please contact me (Rene L. Barnes, AV 221-8156/8157) because your letter has not been processed into the Aviation Branch.

New Enlisted Branch Chief

The Transportation/Aviation Branch, Enlisted Personnel Management Directorate, MILPERCEN, located in Alexandria, VA, recently changed hands when LTC Marvin H. Baker replaced LTC Charles N. Bullard on 1 May 1984. LTC Bullard who was the Enlisted Branch chief from February 1982 is en route to attend the U.S. Army War College, Carlisle Barracks, PA. LTC Baker is coming onboard at a time when the Enlisted Aviation Section is aggressively working on the CMF 67 revision/restructure, tentatively scheduled to become effective this month. LTC Baker comes to his new assignment from Ft. Rucker, AL, where he most recently served as commander, Cairns Division, Department of Flight Training which included Cairns Army Airfield.

For those of you who would like to contact LTC Baker his telephone number is AUTOVON 221-8324/8325.

PEARL'S

Personal Equipment And Rescue/survival Lowdown

Kelley Coles photo by Reflections Studio

Nomex Update

The CWU-27/P Nomex coverall is designed to fit the 5th through 95th percentile crewmember. Most of us fall somewhere between these two parameters, but we have all seen the occasional "King Kong" (6 feet 4 inches, 270 pounds, usually found "trapped" in the cockpit of a scout helicopter) or "Tom Thumb" (5 feet 2 inches, eyes of blue, can't see over the instrument panel). One of the greatest challenges faced by these types is finding clothes that fit. Well, the problem also exists when trying to find a flight suit that fits properly—and the ramifications are much more serious than the agony of not looking like your designer jeans are painted on. A poorly fitting flight suit can be hazardous to your health. When it is too tight, it does not provide the fire protection it was designed to provide; when it is too loose, it can hinder egress procedures. If the sleeves or legs are too short, fire protection is nonexistent at the wrist and above the boot. So the flight suit must fit properly to optimize its performance.

The coverall is provided in 14 standard tariff sizes: 36S, 36R, 38S, 38R, 40S, 40R, 40L, 42R, 42L, 44R, 44L, 46R, 46L and 48R. However, these "standard" sizes are not as standard as you would think. The military specification (MIL-C-83841A) was amended in 1979, shortening the trunk (neck to crotch length) and lengthening the legs (1½ inch). These revisions were incorporated into the coverall patterns in 1981, beginning with contract DLA 100-81-C-3059. All subsequent contracts have these modifications, but since there was no national stock number (NSN) change, the new size flight suits were mingled with the older contracts. Thus, you will find that a pre-1981, 42L suit fits differently than one manufactured after the pattern change. This has resulted in not 14 standard sizes, but 28 sizes, each size having two versions.

Central issue facilities, take note. If a CWU-27/P flight coverall seems ill-fitting, try finding the other version of the suit. Subdividing sizes into "pre-1981" and "post-1981" contracts will facilitate this. Unfortunately, coveralls cannot be requisitioned by contract number, so you'll just have to take what you can get—but check your existing stocks for these "alternate" sizes.

Now back to King Kong and Tom Thumb. What can be done for them? AR 32-4 describes the procedures for ordering special measurement clothing. DD Form 358 (male) or DD Form 1111 (female) should be filled out with all the required measurements (preferably taken by a professional tailor) and sent with a requisition form to the Defense Personnel Support Center in Philadelphia. The requested uniforms are then custom tailored for the individual and shipped. Although the cost to the Government for this process is three to four times the cost for an off-the-shelf flight suit, it is the only method for properly clothing those individuals who are in the 1st to 5th or 96th to 99th

percentile. (The requisitioner pays only the price listed in the AMDF for the flight suit. There is no extra charge to the unit for this service.)

The U.S. Army Aeromedical Research Laboratory, Ft. Rucker, AL, is currently conducting an anthropometric study on the Aviation crewmember population. The results of this study can be used to determine if any modifications to the present standard tariff sizes are required. Better nutrition, health care and the influx of female crewmembers into the Aviation population have all affected the makeup of the 5th through 95th percentile crewmember. Also under consideration is a move to include the 1st through the 99th percentile in standard tariff sizes—an action that appears expensive on the surface, but may in fact reduce the cost of the overall program by lessening the number of costly special measurement clothing requisitions.

So take a close look at your flight suit, and those of your fellow crewmembers. An improperly fitted flight suit will not protect you when it counts. Remember: The skin you save may be your own.

This article was submitted by CW2 Charles Gibson, Directorate of Combat Developments, Ft. Rucker, AL, AUTOVON 558-5272/5071. Point of contact for this office is Mr. Tommy Vaughn, DRCPO-ALSE, AUTOVON 693-1218.

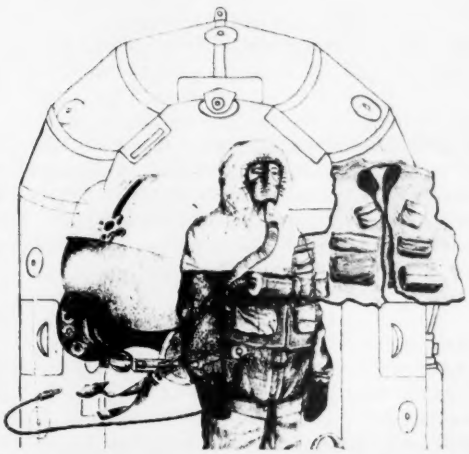


illustration by Tommy Dickens

FM 1-302/FM 55-408

Change 1 to FM1-302, "Aviation Life Support Equipment (ALSE)," for Army aircrews is being distributed to correct poor quality of photo reproduction. FM 55-408, "Maintaining Aviation Life Support Equipment (ALSE)," should reach the field in the fall of 1985. Point of contact for FM 1-302 is CPT Blinkinsop at AUTOVON 558-5956.

AR 95-17

What does AR 95-17 have in common with AR 95-XXX? We have waited a long time for this Army Regulation, AR 95-17. It is the official publication identifying "The U.S. Army Aviation Life Support Equipment System Program." We strongly recommend that any 2028 changes be held in abeyance until such time as the users get a chance to digest its contents. The new regulation gives the "teeth" needed for a viable ALSE program.

Delayed Implementation of Para 2-9b, AR 95-17

Department of the Army Message DALO-AV R112030Z May 84, is quoted for the benefit of Aviation unit commanders and Aviation life support equipment (ALSE) users/personnel.

SUBJECT: Delayed implementation of Para 2-9b, AR 95-17. A Worldwide Aviation Logistics Conference (WALC), April 1984.

1. AR 95-17, "The Army Aviation Life Support Equipment System Program," paragraph 2-9b, requires each aircraft crewmember to be equipped with a survival radio. 2. The April 1984 WALC discussed the shortages of survival radios experienced Armywide and directed a work group (WG) be formed to develop a plan of action to improve the serviceable supply posture of these radios. The WG met 1 to 3 May 1984 and have identified courses of action to resolve present and future shortages of survival radios. 3. To allow the WG recommendations time to be evaluated and initiated, this message authorizes the following changes to AR 95-17: A. Implementation of paragraph 2-9b, AR 95-17, will be delayed until 15 November 1984. B. In the interim, the pilot in command will ensure that not less than one fully operational survival radio will be onboard the aircraft during each flight. This does not preclude other crewmembers from having additional survival radios onboard the aircraft when assets are available. DRCPO-ALSE action officer is Mr. Jim Dittmer, AUTOVON 693-1218.

If you have a question about personal equipment or rescue/survival gear, write PEARL, DARCOM, ATTN: DRCPO-ALSE; 4300 Goodfellow Blvd., St. Louis, MO 63120 or call AUTOVON 693-1218/9 or Commercial 314-263-1218/9.

THREAT BRANCH

First Lieutenant Charles M. Thomas
Threat Branch
Directorate of Combat Developments
U.S. Army Aviation Center
Fort Rucker, AL

Update of Soviet Helicopters

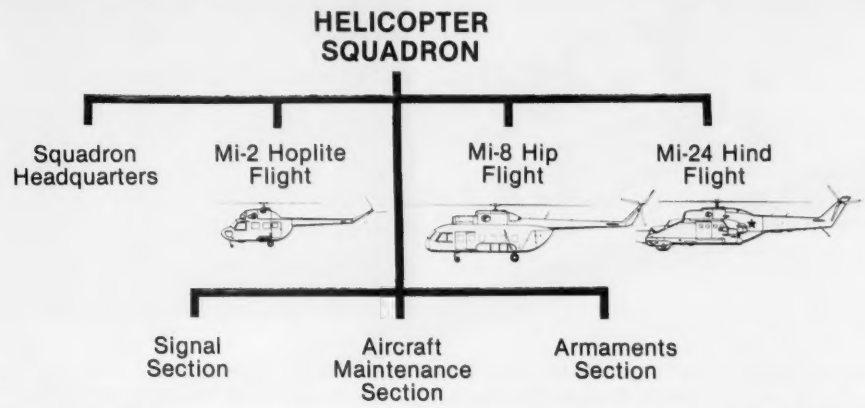
Mi-8 Hip-C with four 16-shot 57 mm rocket pods.

UNTIL THE EARLY 1960s, the Soviets were skeptical about the use of helicopters for any purpose other than rear area logistical support. The employment of helicopters by the United States in Vietnam prompted the Soviets to reevaluate the usefulness of helicopters on the battlefield. They took the lessons of United States' helicopter employment in Vietnam and applied them to the development of their own tactics and doctrine. One of these changes included the arming of the Mi-8 Hip. This armament included a mix of rockets and antitank guided missiles. These munitions were not part of the original design configurations; therefore, the rocket pods and missile launch rails were strapped on, making this cargo helicopter a formidable attack aircraft.

Also, the Hind-A began appearing in numbers, using engines similar to those of the Mi-8 Hip, but shorter. But even when the Soviets began producing the Hind-A in 1972, they still weren't sure of their employment needs. To reduce the risk inherent in the production of a pure attack helicopter, a cargo bay was incorporated into the basic design. Influential members of the Soviet staff argued at the time that the aircraft must be designed with a cargo bay for logistical applications, because they were too poor to afford a sophisticated single-purpose helicopter in such great numbers. The rationale was that the helicopter would have a dual purpose: attack as well as cargo or utility.

Organization

A recent change has been noted in the organization of Soviet motorized rifle and tank divisions. The Soviets have restructured their divisions to include organic helicopter squadrons. The formation of this helicopter squadron in the division is currently assessed as representing part of a wartime divisional structure; the assessed strength for the squadron is about 18 aircraft and 200 people (see figure, page 17). In motorized rifle and tank divisions, squadron-sized units with six Hind, six Hip and six Hoplite aircraft have been incorporated into the force structure. Operational control for the organization has been given to the division commander. This structuring represents a remarkable degree of flexibility which is counter to the



1. This is a preliminary assessment. Squadron structure and the totals of 18 aircraft and 200 people are estimates only. More detailed information is not available.

2. The squadron is present in some divisions. Motorized rifle and tank divisions that do not have this type squadron may have a helicopter detachment, which probably consists of six Mi-2 Hoplites, two Mi-8 Hips and about 100 people.

3. Most divisions that have organic helicopter elements (squadron or detachment) are deployed in the forward area.

Soviet philosophy for over-centralization. Apparently there is still an administrative and logistics link to the parent air force.

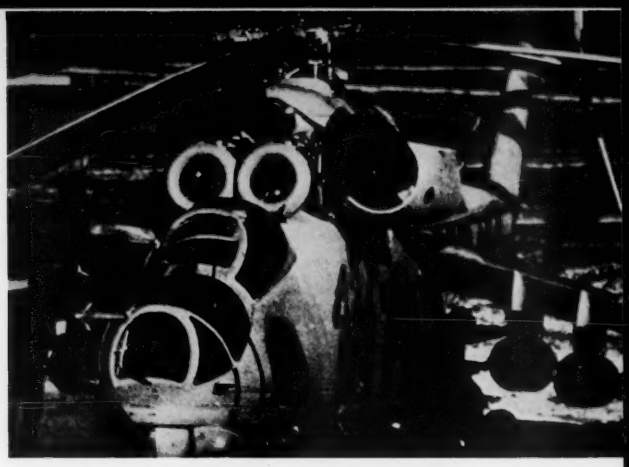
Aviation assets have been centralized under air force control of frontal aviation since 1942. With the development of Soviet attack helicopters have come new doctrinal applications. Control of these valuable assets has been decentralized to ground commanders at army and division level. By "relaxing" this control, it is anticipated that the Soviets are trying to increase the availability of this valuable combat multiplier to the commander on the battlefield.

The capabilities of the Hind and Hip aircraft make independent assault helicopter regiments (IAHR) a vital component of the Soviet Armed Forces' new operational concept—the operational maneuver group (OMG) and the airmobile/air assault brigade (AAB). Both of these formations are to defeat North Atlantic Treaty Organization's (NATO's) active defense on the Central Front. The IAHRs may be allocated to combined arms army and/or tank army level. These assault regiments probably consist of 3 to 4 squadrons of Hind and Hip helicopters—a total of perhaps 50 to 60 helicopters. Early in an offensive, the OMG and AAB will be launched at a very high speed into the rear area of NATO's main defensive belt. The purpose of this mission is rapid, deep penetration during the outbreak of hostilities in order to speed the advance of the main forces. By using Hind and Hip aircraft, the destructive force of the OMG/AAB can be multiplied.

Aircraft

The Hind has been constantly improved from 1972 to the present—the most recent development known as the E model appearing in the 1976 to 1978 timeframe. The Hind possesses the principal design features of modern attack helicopters. Some of these features include segregated seating for pilot and gunner in tandem configuration and hard points on short wings for missiles, rocket pods, bombs and auxiliary fuel tanks. This lethal helicopter is capable of mounting four 32-shot (probably 57 mm) rocket pods, 4 antitank guided missiles and a turreted mounted Gatling gun—assessed as equivalent to a 4-barrel, .50 caliber Gatling gun.

The Hind is powered by two turbo shaft engines mounted side by side. These engines are postulated to generate 2,200 hp each and are protected by armored engine covers. Other protection includes armor on the underside of the fuselage to protect the underfloor fuel tanks and also the storage space for gun ammunition. Protection for the cockpit includes armor plating and bullet-proof type glass which is reportedly resistant to 12.7 mm fire.



Soviet aircrew working on Hind-D. Notice the size of the aircraft in relation to the crewmembers.

In terms of weight capabilities, the Hind has a normal operating weight of 24,000 pounds. This includes a main fuel tank load of about 3,330 pounds and a standard armament load of more than 3,200 pounds. The armor protection on the Hind totals more than 2,000 pounds. This is in sharp contrast to the maximum operating weight for the AH-1S at 10,000 pounds, including its 825 pounds of armament. At a maximum takeoff weight of more than 25,000 pounds, the Hind normally will use a rolling takeoff.

Available production figures indicate that the front-line strength (i.e., the Hinds stationed in East Germany and Czechoslovakia and not counting those in the western military district of the USSR) amounts to about 350 Hind D and E models. In all, more than 1,000 Hinds are believed to have been built and they are probably still being produced at a significant rate.

The Hip-C is designed as an armed troop carrier; it exists in both civilian and military configurations. The military version differs from the commercial helicopter in having small circular windows rather than large square windows in the passenger section. Armament may include four 16-shot 57 mm rocket pods, four 250 kg bombs or two 500 kg bombs. The Hip-C may mount a lightweight machinegun in the side door, and each window in the transport version is equipped with a support bracket to allow infantrymen to fire their assault rifles at ground targets from the air. The Mi-8 Hip-C appeared around 1964. The Hip-H is now beginning to appear as a modernized troop carrier with more firepower and survivability.

Doctrinal Tactics Changes

The Soviets have made significant doctrinal changes concerning their use of helicopters. They continue to evolve new tactics that capitalize on quantitative and qualitative improvements of these combat aircraft. The most dramatic impact emanates from the Hind. This highly capable, multipurpose helicopter has allowed the Soviets to employ a combat multiplier of better quality and in greater numbers than their free-world opponents. Hind's speedy and successful integration into the Soviet combined arms team and exploitation of its capabilities have allowed the Soviets to continually broaden the influence of the attack helicopter on the battlefield. The Hind-E supports Soviet operational requirements for—

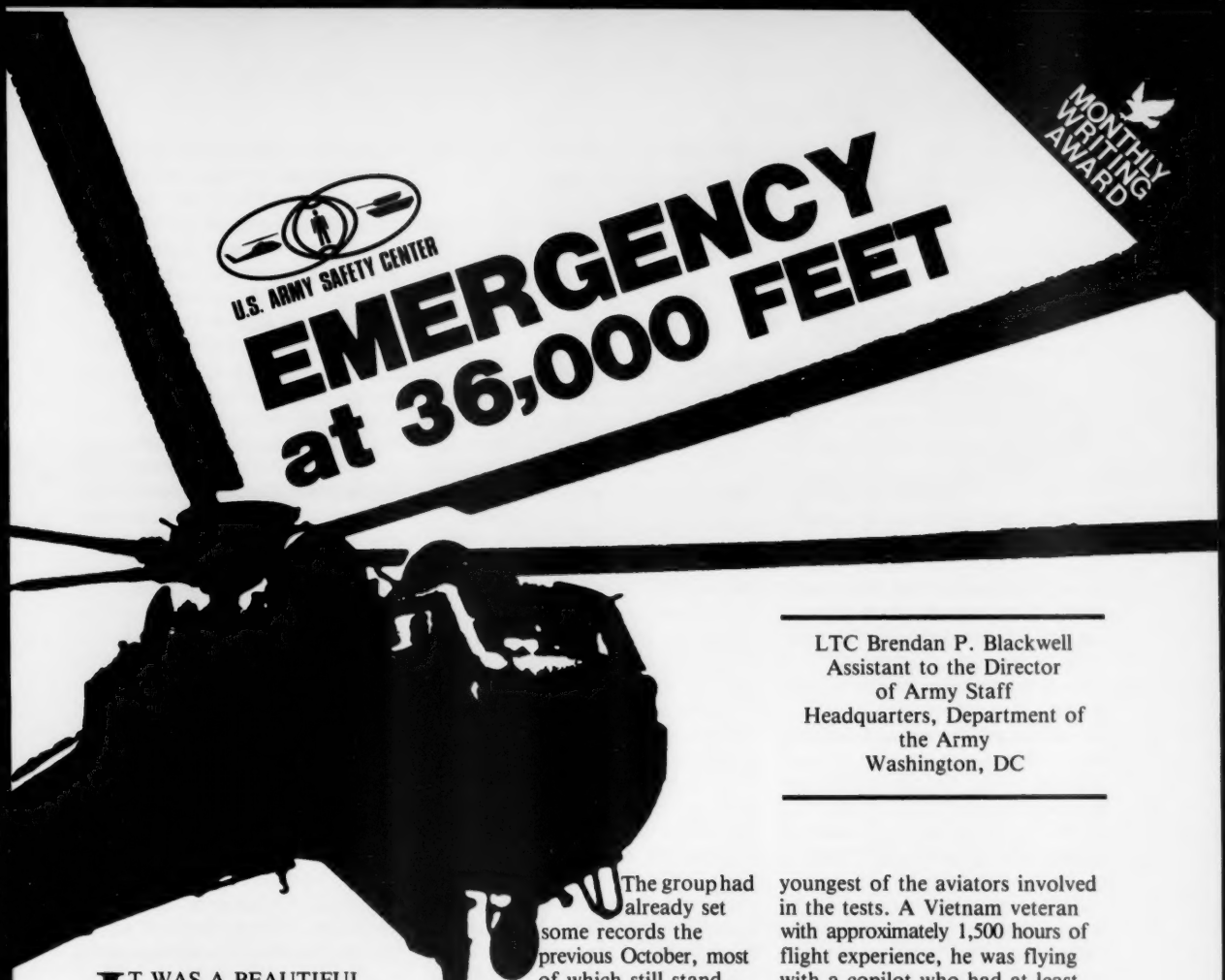
- Close air support.
- Antiarmor operations.
- Antihelicopter operations.
- Escort of troop-transport helicopters.
- Commando missions.
- Armed rescue.

These missions are generally performed in partnership with Mi-8s although the cargo and troop carrying capacity of the Mi-24 does mean that it can accomplish all the operations by itself; but don't expect it to.

The Future

Because Soviet helicopters have proved successful as more than logistical rear area support aircraft, it is likely that the Hind will be used as a dedicated attack aircraft. Some noted changes in Soviet pilot training are believed to include air-to-air engagements, as well as low-level, nap-of-the-earth type tactics and adverse weather/night flying. New Soviet attack helicopters may have increased capabilities to fill in where the Hind falls short. We can anticipate that new aircraft will have redundant hydraulic and electrical systems, sealed fuel tanks, and equipment with radar and terminal homing missiles.

Organizationally, it is feasible that the decentralization concept will continue, reflecting more flexibility in operational employment. If this occurs, the Soviet attack helicopter will see more integration into the combined arms team. Air assault assets may receive more flexibility in command and control and, therefore, can be expected to be employed more readily on the battlefield. The prospect is that the Soviets will wait to see how NATO, specifically the United States, develops its helicopter doctrine before taking a firm stand on their own tactics.



U.S. ARMY SAFETY CENTER

MONTHLY WRITING AWARD

EMERGENCY at 36,000 FEET

LTC Brendan P. Blackwell
Assistant to the Director
of Army Staff
Headquarters, Department of
the Army
Washington, DC

IT WAS A BEAUTIFUL, clear, sunny April day in 1972 when CPT Brendan Blackwell, piloting a CH-54, took off from the Sikorsky plant helipad in Stratford, CT. Flying as copilot was MAJ John Henderson, a fully qualified test pilot. Part of CPT Blackwell's responsibilities with the heavy lift helicopter (HLH) project was monitoring testing.

The project group's effort involved trying to determine the ultimate performance of the CH-54 Sikorsky Crane. As a sidelight to all the helicopter testing managed by the HLH project, Blackwell and Henderson would also attempt some payload and altitude records.

The group had already set some records the previous October, most of which still stand. During this flight they would attempt to set records in the CH-54 for 0 payload to max altitude and max altitude in cruise or level flight.

They set records at 1,000, 5,000, 10,000 and 15,000 kilogram payload altitude and then they went up to a little under 12,000 feet for the maximum loads and as much as 34,000 feet with the low payloads and set a series of time climb records from 1,000 to 20,000 feet altitude. The aircraft, which had been stripped down from its normal weight of about 24,000 pounds to around 18,000 pounds, was operating on the outer edge of its performance capability.

CPT Blackwell, at 24, was the youngest of the aviators involved in the tests. A Vietnam veteran with approximately 1,500 hours of flight experience, he was flying with a copilot who had at least three times that many hours and a great many more hours of experimental flying

Aircraft 18488 took off on its record setting attempt in the early afternoon. The events of the next hour and a half would make the flight seem like a year and a half to Blackwell and Henderson.

As the helicopter left Stratford, a chase aircraft also took off from Poughkeepsie, but as the Crane rapidly climbed towards 36,000 feet the chase aircraft would be left behind. Its crew would be unable to see the test aircraft until an emergency had brought it spiraling back down to 18,000 feet.

The Crane, whose auxillary

U.S. Army 488 stripped for the world record attempt. Note: no horizontal stabilizer, no steps to the cockpit, no particle separators, no cargo hook and cable, no four-point suspension system, no APU—altogether about 3 tons lighter than the average mission-equipped 54.

power unit (APU) had also been removed to reduce weight, was run off an aux cart. All electrical systems were going when the crew climbed in, including a fan that theoretically would blow hot air on the windscreen to keep it from fogging up or icing over. What the crew hadn't realized was that at 36,000 feet there would be no air for the fan to blow; as the aircraft iced over, so did the windshield.

Both pilots wore automatic, barometrically-controlled-opening parachutes. Their route could potentially take them over the ocean so overwater survival suits and Mae Wests also had to be worn. In fact by the time they were strapped in with all their gear on, they could barely move.

As Blackwell took off, he headed north to find and get upwind of the jet stream. He estimates they pulled in near maximum torque for takeoff and climb. (Under normal conditions torque limits are around 78 percent on a Crane.) At the beginning of flight the aircraft, which wasn't carrying much fuel, climbed at more than 6,000 feet a minute. (The climb record for the CH-54 is over 10,000 feet a minute.)

The idea was to get to altitude fast because, "You soon hit a rock wall up there at about 34,000 feet and then it's a matter of sitting there, burning fuel, losing weight and climbing very, very slowly," Blackwell explains.

Technically the aircraft was not supposed to operate IFR, but it was so high that even on this clear day the crew could see very little. When everything iced over, they could only see out forward in the space between their feet. Their indicated airspeed was around 32 knots and the jet stream was moving at something like 150 knots. The aircraft was truing out at around 40 to 45 knots.

As they gained altitude their velocity increased and the aircraft was actually tracking backwards across the landscape towards the Atlantic at 100 to 120 knots. CPT Blackwell had known that this would happen but he had no experience in navigating by looking where he'd been rather than where he was going.

"The aircraft was actually tracking backwards across the landscape toward the Atlantic at 100 to 120 knots."

New York Center had the aircraft under control and its rearward flight was confusing to the air traffic controllers there. An aircraft on a heading of 320 degrees, tracking backwards over the ground that was 180 degrees in the other direction could only be a problem for radar controller personnel to follow. A helicopter at 35,000 feet, engaged in this peculiar backward flight, also caused some consternation for civilian flight crews in this heavily trafficked area.

The oxygen diluter demand system in the Crane was probably the most uncomfortable aspect of the flight for the Army pilots. CPT Blackwell says that he would never recommend such a system for anybody on a high altitude test flight. "Once you go beyond 24,000 feet, it sort of blows you up like a balloon when you relax the back of your throat. You can't create enough negative pressure in your diaphragm at that altitude to inhale adequately without the system. To talk on the radio you have to speak against that pressure and it makes it very difficult to speak and to be understood," he explains. Oxygen also leaks around the mask and makes the aviator's eyes burn. "It's extremely uncomfortable and a problem that you certainly don't need when you're scared to death anyway," he adds.

Although the crew had "preox'd" breathing pure oxygen for a half hour to get rid of the nitrogen in their blood, they were still suffering all sort of chills and pains in their joints from rapid decompression because they

were gaining altitude so rapidly.

As the aircraft reached 36,000 feet, there was a "pop pop" sound. "I remember very clearly getting what I guess you could call a 'shot of ice water' in my veins, the feeling you get when the adrenalin flows," Blackwell recalls. "I think we both just sat there frozen for a second, waiting to see if the aircraft was going to come apart," he says. Both pilots were wearing parachutes and they had a reserve bottle of oxygen in case they had to bail out. They had talked about getting out of the aircraft under such circumstances while they were planning the flight. They knew that the probability of one of them getting out was pretty good—but probably not both.

The aircraft didn't come apart, there wasn't even the vibration or unusual shaking they had experienced on other flights when aerodynamic limits were being breached. The popping sound the pilots had heard was the shock wave generated as the two N1 sections went supersonic or into compressability. As this shock wave went through the engines it caused something like a mini sonic boom. The compression wave that passed through the engines blew their fire out!

The second and a half that passed before Blackwell and Henderson could be sure the aircraft wasn't breaking up seemed like an eternity to them. Twelve years later, perspiration glistens on Blackwell's forehead as he listens to the cockpit tapes of himself and MAJ Henderson. "It still makes my stomach go flip-flop when I listen to all of that, even though I've heard it several times before, " he admits.

Blackwell dropped the collective and the aircraft wobbled around a bit, but he was able to hold the wings level,

"I think we both just sat there frozen for a second, waiting to see if the aircraft was going to come apart."

putting the nose down slightly.

As he listens to the tape, Blackwell hears his own voice calling, "Mayday." The copilot, Henderson, was on the other radio to engineers on the ground who were monitoring temperatures and N1 readings and trying to come up with ways to make the aircraft perform better in flight. An extra rescue aircraft had also been scrambled—the chase helicopter still didn't have the disabled Crane in sight.

Both aviators were having trouble talking because of the diluter demand oxygen system. Blackwell remembers telling New York Center they were coming down. The controller, who did not at first understand their situation, cleared the aircraft to descend to flight level 220 and instructed Blackwell to hold. Blackwell knew there was no way he could hold at 22,000. By now he had the Danbury, CT, airport in sight, "In that short time I had flown 50 traffic patterns in my mind and I was ready to take it in there," he says.

An airline pilot who was monitoring the radio traffic, came in and told the New York Center controller that a CH-54 only has two engines, both of which had stopped, and that the Crane was coming down whether he wanted it to or not. That message got through and the excited controller began rerouting traffic out from under the helicopter, giving it clearance to descend.

Blackwell describes that descent. "The aircraft felt so light, like it was floating; it just wouldn't come down. I don't think we came down over a thousand feet a minute, I'd say it was a good 15 or 20 minutes." He was in a left turn as the aircraft slowly spiraled down over Danbury. The airport had received a radio transmission to clear all traffic out of the way.

Twenty minutes is a long time to think about all the things that can go wrong. The pilots still didn't know what was wrong with the aircraft. The chase aircraft finally caught up with them at about 18,000 feet and was able to reassure them that nothing was coming apart and there was no fire. (At the high altitude where the emergency had begun it wasn't likely a fire would have been sustained but if there had been a fire it would have intensified as they descended to lower altitude.)

While Blackwell was trying to get the helicopter down, Henderson was attempting to restart the engines. As he spun the engines they could tell the N1 sections were turning over. They were getting an EGT indication so they knew there was some kind of fire in the engines although they couldn't get a sustained start. "It was probably the longest emergency I ever experienced in my life," Blackwell says. "In combat where you're being shot up, or shot at, and in other test emergency circumstances, the whole thing seems to go by like a flash, but this thing just went on and on." The apprehension about whether the aircraft would hold together, uncertainty about exactly what was wrong and the physical discomfort in the cockpit, together with the length of time they had to contemplate the situation they were in, was terrible, Blackwell remembers.

Henderson's efforts and the lower altitude finally proved successful as first one, then the other, engine turned over and started. A relieved Blackwell

decided not to land at Danbury, but to return to Stratford where more crash rescue equipment was available and already standing by. He was headed southeast as Stratford came into sight. They were 5 or 6 miles out as he turned to line up on the runway, trying to maintain minimum power and a steady glide angle to keep from pressing the aircraft. Just as he started to breathe easier, the fire lights flashed on! Blackwell remembers another surge of fear, "I just wanted to drop the collective and say, the hell with it. I was about exhausted mentally after 20 or 30 minutes of not knowing if the ship was going to hold together and if I'd ever get the son-of-a-gun down in one piece," he says.

The chase aircraft again took a close look and assured them everything was okay; there was no fire. Blackwell rolled the aircraft over, expedited his landing, and Army 18488 touched down, rolled out and stopped. The crew shut her down and climbed out.

LTC Blackwell did a lot more flying after that day in April of 1972 including a lot of experimental work—and there were other scarey incidents. With another aviator, CW3 Spivey, he was flying a 15,000 kilogram payload when one of the blades stalled and went out of track and they didn't know why. "Now that will get your attention," says Blackwell. He also did a lot of test work on HLH simulators while they were trying to determine the laws of motion that would go into the computer which would fly the aircraft. He later flew on the 347 experimental aircraft, a winged Chinook with a full fly-by-wire flight control system.

Blackwell was asked what he has learned in all those hours of flying that might be valuable to a new generation of aviators. He replied:

Keep studying

"Whether you're flying experimental or test aircraft or flying training missions, my best piece of advice is to keep studying: Stay current on what your aircraft does and can do, pay attention, and fly with good people.

Plan

"Sure I had anxieties after that test flight but emergencies can happen no matter what kind of flying is going on. The best insurance you can have against that kind of thing is to be prepared. I guess I read all the time about the aircraft I flew. Whether I was on a flight somewhere or sitting around waiting to go on a flight, I was usually studying that flight—particularly if it was a test flight. I studied the power settings we wanted to achieve, the airspeeds and the altitudes. If it was dynamic stability testing, I wanted to have it clear in my head, even though I had checksheets for that stuff. I wanted to know for instance that I had to pulse the cyclic forward one inch for one second then release it to see what the aircraft would do.

Rehearse

"I rehearsed emergencies in my mind. I would sit and daydream and imagine if we were in this set of specific circumstances what were the things that could go wrong and cause me problems. Then I would respond by mentally rehearsing what I would do. The other aviators did the same thing. We went over and over in our minds what we would do if certain things happened.

Talk

"Another thing I recommend that crewmembers do is talk—not about the movies they've seen but about their flights—what they're going to do and what they're going to try to do. I talked over the flight with other aviators that I flew with, again especially in experimental work. We were always discussing back and forth, 'If we're flying and we're going to perform these maneuvers and these things go wrong, here's how we're going to work it.' We worked these things out way in advance, talked about them a lot and sort of rehearsed them in our minds, although we couldn't rehearse them in fact. These discussions/rehearsals paid off because the crews clicked in emergencies without talking. (In the emergency described in this article Blackwell and Henderson did not need to talk to each other, they knew what they had to do and each proceeded to do his job, in spite of the fact that they had fewer than 10 hours of actual flight time together in the CH-54.)

Practice emergencies

"Another thing we did while sitting in the aircraft was to dryrun the mission. We talked it through, what each of us would do and what we would do if anything went wrong.

"You can do this in experimental flight or on training missions because you have a controlled environment. It's different in combat after all you don't plan that somebody is going to shoot something out that's going to give you a problem. But in the kind of flights I'm talking about you can sit and think about the flight and discuss it with your copilot. This becomes even more important where there is a wide divergence in flight experience between crewmembers. Before this flight MAJ Henderson and I talked a lot. He had a lot more experience, particularly in experimental flying, and he wanted to coach me along. I was going to be the driver with him as copilot and he did magnificent

things as copilot during this flight, just as he would have done if he'd been flying as pilot.

"I've done this kind of talking through of missions with all of the aviators I've flown with—as an IP with my students and at my last flying assignment at Ft. Campbell, KY, where I flew with people a lot less experienced than myself. In both instances we talked on the ground in great detail about what we were going to do, how to handle tough spots and what emergencies might come up. Then we went up and practiced.

"I'm not talking about sharpshooting either—if you know you're going into an unprepared site surrounded by trees and power lines, you don't say to your copilot, 'Dummy, do you see the power lines?' You talk it over, maybe you say, 'I've got the power lines and trees on the right; you've got the antenna on the left; it looks dusty and there are stumps in the field.' You talk about what's going on in your flying, you don't just both sit there in the aircraft and stare outside.

Immerse yourself in your flying

"Don't waste your flight time just driving around. You should talk flying all the time with your buddies, and talk to oldtimers. You need to get how everybody handles emergencies in your head. Immerse yourself in your business—and your primary business is flying.

"You can't fly all the hours you need, so you have to use every available source—experienced people, professional journals and the good ol' dash 10. If you do all that, you can increase your expertise in flying by 50 percent over the actual flying hours you have.

Fly like you've got your best friend as a passenger

"Peacetime flying is different from combat, but you can practice shooting missiles and guns in a Cobra and still fly like you've got a load of passengers. I don't think it takes the edge off boldness or compromises aggressiveness or ability to fly this way. When the war starts everything changes—then your passengers are all a part of it, just like you, and we are all in it together. But on training missions if you don't want to wreck airplanes and kill people, fly like you've got your best friend behind you.

"I just hope you're all half as lucky as I've been and that you can have a few of the flying experiences I have been so fortunate to experience. You should all get the chance to go out and set world records."

Postscript

The CH-54 used in this experimental flight was refurbished. Her dynamic system, engines, etc., were completely changed out; the test flight had used up the fatigue life in all of her components. She went to an aviation battalion in Alaska and is now assigned to the 207th Scout Group of the Alaska National Guard. (All of the CH-54 Cranes were transferred to Guard units several years ago.) If you see a Crane with tail number 488, it should have a plaque on the left door showing the records that were set by crews like Blackwell and Henderson.

(Blackwell and Henderson were denied the record for 0 payload to max altitude when the engines of their aircraft failed at 36,000 feet. A Frenchman, whose record had fallen to U.S. Army crews the year before, has since gone beyond 40,000 feet to reclaim the record.)

As far as LTC Blackwell knows, the Army has not attempted to beat this CH-54's record of 36,000 feet in the last 12 years. He admits that is a disappointment to him. "We should be out pushing the frontiers under controlled circumstances," he believes. LTC Blackwell doesn't lay any claim to being a skilled test pilot himself; quite the contrary, he gives the real credit to people like MAJ Henderson and the senior CW4s and CW3s, highly skilled aviators, that he had helped to recruit for the test project. Blackwell's name is on only one record, the others were claimed by the crews he feels deserve them.

ABOUT THE AUTHOR

LTC Brendan P. Blackwell is currently assigned as an assistant to the Director of Army Staff in the Pentagon.

Following his graduation from flight school in December of 1968, LTC Blackwell served in Vietnam. Twelve years ago, at the time of the incident described in this article, he was a captain involved in the heavy lift helicopter (HLH) project. While attempting to determine the ultimate performance of the CH-54 Crane, Blackwell found himself piloting an aircraft in which both engines had failed. He has agreed to talk about what happened during that emergency at 36,000 feet and to share with a new generation of Army aviators his ideas of the reasons why that crew lived to tell the story.

Mr. Robert Brock
U.S. Army Missile Command
Redstone Arsenal, AL

Hydra 70

And Army Attack Helicopters

ATTACH THE Army HYDRA 70 rocket system to the AH-1S Modernized Cobra or new AH-64A Apache attack helicopter and the yielded product will substantially increase system performance and effectiveness while reducing aircraft attrition. The AH-1S and the AH-64A Rocket Management and Fire Control Systems' ability to precisely aim and deliver rockets, and the "fire and forget" system of the HYDRA 70 capable of engaging a large variety of targets effectively, make an unbeatable combination.

The improved rocket family was recently named HYDRA 70 by the Army. In Greek mythology HYDRA was a many-headed serpent. Every time Hercules chopped off a head of the serpent two grew back in its place. The original 2.75 inch rocket (nicknamed "Mighty Mouse") was developed in the early 1950s by the Navy as an air-to-air weapon. Since the mid-1960s, the 2.75 inch rocket system has been used and managed by the Army.

Mighty Mouse, used in Vietnam, had a reputation for inaccuracy and limited effectiveness. To achieve major system improvements, the HYDRA 70 Rocket Management Office at the U.S. Army Missile Command, Redstone Arsenal, AL, has developed a new generation of warheads, fuzes, rocket motors and launchers to adapt to the needs of the Army's AH-1S and AH-64A attack helicopters.

The improved HYDRA 70 rocket includes:

- The multipurpose submunition (MPSM) warhead with a cockpit remote range settable M439 fuze.
- The high explosive (HE) 10-pound warhead with a cockpit remote settable multioptional M433 fuze (HERS) rocket.
- The fixed stand-off range illumination warhead.
- The fixed stand-off range screening smoke warhead.
- The extended range and more accurate spin stablized MK66 Mod 1 rocket motor.
- The 7- and 19-tube lightweight rocket launchers which are compatible with and required for the new warhead/fuze/motor combinations.

Initial procurement of the MPSM warhead and MK66 Mod 1 rocket motor began in fiscal year 1982. The first production model of the HERS rocket was completed in December 1982. Illumination rockets and initial production quantities of lightweight launchers are already in the field. However, the screening smoke warheads are not scheduled to be released until April 1985.

Just what do all these improvements mean?

- The new M260 (7-tube) and M261 (19-tube) lightweight launchers provide the electro/mechanical interface that gives the pilot the capability to independently set the mode of operation and the function range for the new electronic rocket fuzes.
- The new MK66 Mod 1 rocket motor has the capability of delivering a variety of warheads to ranges in excess of 6,000 meters...accurately.
- The new HERS rocket allows the pilot to select super-quick, bunker penetration or canopy penetration (targets under trees) functioning of the high explosive warhead.
- The new MPSM warhead provides an accurate fire and forget system for suppressing multimedia area targets.

In addition to the aforementioned improvements, the MPSM warhead deserves further elaboration. The MPSM warhead alone increases the lethal effectiveness and capability of HYDRA 70 to include the ability to engage a variety of battlefield area targets comprised of materiel, personnel and light armor; and the ability to engage targets by direct or indirect fire out to 6,000 meters with the additional capability to select the range through the use of a cockpit remote range settable fuze.

The potency of the MPSM warhead can be illustrated if one considers that just one of the nine M73 grenades delivered by the warhead yields a lethality against prone personnel targets comparable to one standard 10-pound unitary HE warhead of the Vietnam era rocket. With that in mind, a single MPSM warhead possesses a lethal area far greater than the unitary HE warhead.

Moreover, the target engagement opportunities of the M73 grenade shaped charge are virtually unlimited. It will perforate light armor and, through controlled fragmentation, penetrate materiel/vehicular targets.

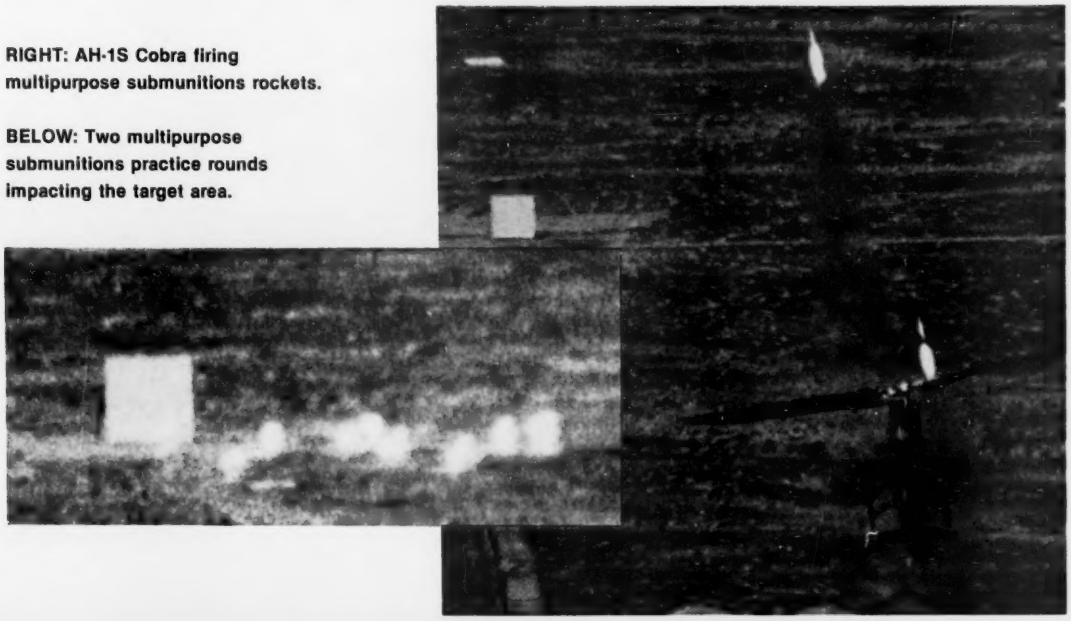
The improved lethality and accuracy of the MPSM rocket with the increased stand-off engagement range capabilities of Army attack helicopters greatly improve system effectiveness.

Further growth potential for HYDRA 70 is attainable through the adaptation of remote set range settable fuzing to the screening smoke warhead, the illumination warhead and a flechette or penetrator warhead with a high or hypervelocity rocket motor.

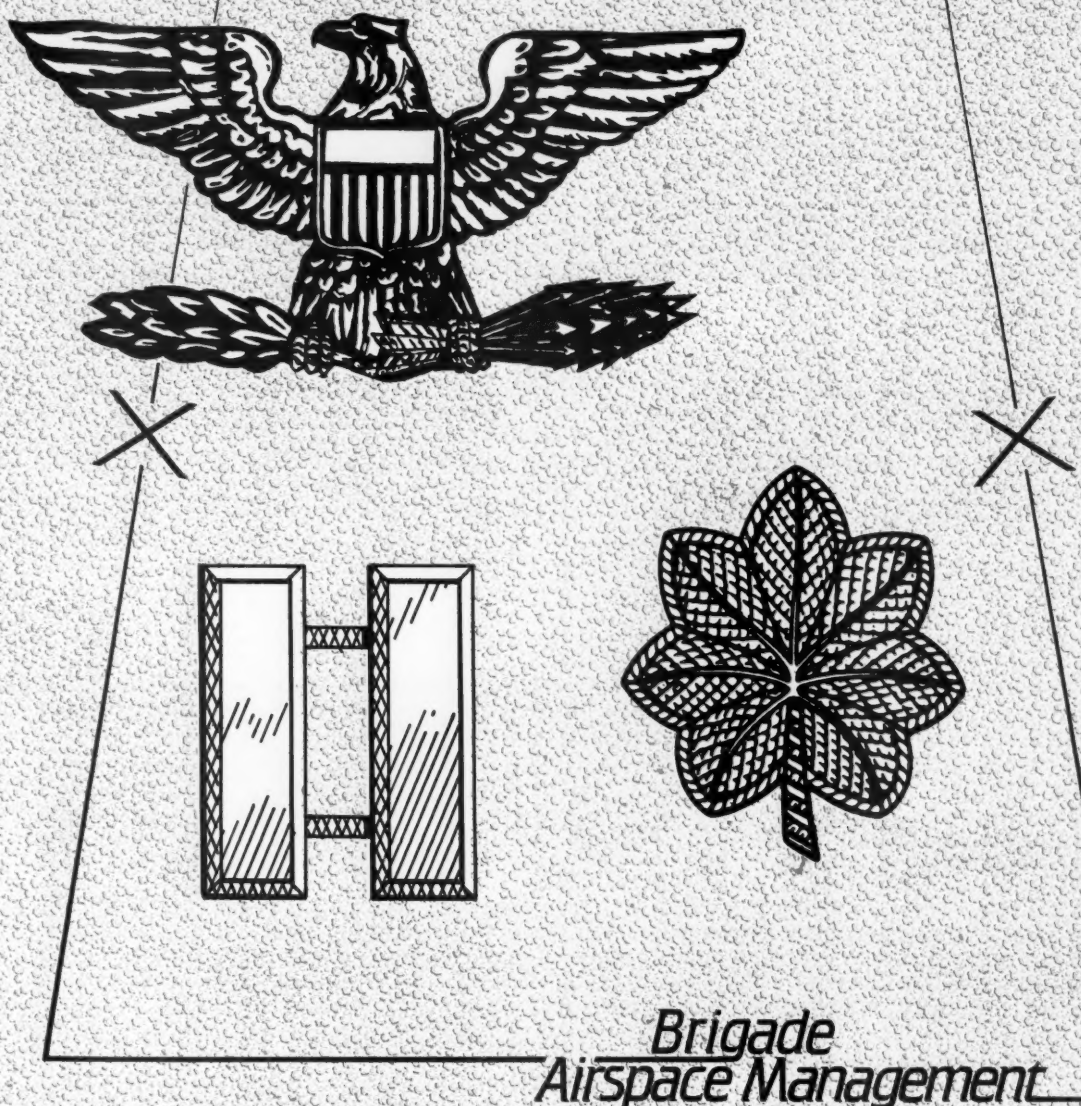
Overall, the HYDRA 70 rocket system, coupled with the AH-1S and AH-64A, greatly enhances Army Aviation's capability to effectively defeat multimedia threat targets in air-to-surface scenarios. Additionally, this enhanced capability may, in part, be transferable in defeating air-to-air threat targets as the scenarios become more defined.

RIGHT: AH-1S Cobra firing multipurpose submunitions rockets.

BELOW: Two multipurpose submunitions practice rounds impacting the target area.



PART III: Command, Control and Communications



Brigade Airspace Management

Major William E. Coleman
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The views expressed in this article are the author's and do not necessarily reflect those of any Department of Defense agency.

PART I IN the April issue covered the historical background and Part II (last month) discussed an offensive operation in the AirLand Battle as it pertains to brigade airspace management. In this issue, Part III presents command, control and communication means available to the brigade and battalion commanders and their staffs to assist them in managing their airspace. The commanders' ability to influence the battle is directly dependent on the effectiveness of their airspace management.

Command

The brigade command post normally will be located close enough to the enemy to be vulnerable to attack by artillery and air. The commander must determine his air defense artillery (ADA) priorities to minimize the risk of attack to his command post by enemy aircraft. Combat units should have first priority of protection with ADA assets. The enemy would be forced to fly through several echelons of organic and attached ADA firing positions before reaching the command post.

When the commander requests Aviation support, he must coordinate the aircraft operations with the ADA and maneuver units. This coordination is the nucleus of the airspace management effort for the brigade and battalion area. Friendly aircraft operations information is essential to the survival of Army Aviation assets. The commander must ensure that the subordinate commanders know when and where the Aviation units will be employed. As this information is disseminated to the ADA gunners and the ground combat leaders, the Aviation commander is also informing his aircrews of the ground commander's scheme of maneuver and air defense procedures. The control measures to be used during this coordination effort will be decided by the commander and disseminated by his staff.

Control

Without control you do not have a battlefield plan or an airspace management procedure that can be effective. Troops, tanks and aircraft cannot wander about the battlefield without interfering with someone's organized battle plan. To minimize mutual interference of one battalion or company with another, the commanders establish control measures. Axis of advance, unit boundaries and air corridors are commonly used control measures for offensive operations. When these control measures are combined into a single battle plan they provide the width or lateral means to separate friendly from enemy aircraft. Likewise, line of departure, forward line of own troops (FLOT) and a fire support coordination line provide longitudinal points of control. Communication means will reduce the risk of destroying friendly aircraft, while air defense artillery systems acquire, track and destroy hostile air forces.

Communications

Effective airspace management is dependent on procedures that work in a degraded electronic communications environment. The key to disseminating these procedures is through the use of the standing operating procedures (SOPs). There are several resources available to the ground commander to assist his staff in writing the airspace management portion of the SOP. The next higher headquarters should have an appendix to its SOP that could be used to formulate the basic framework for the units' SOPs. Other sources of information come from units that normally will support the ground commander during field exercises and combat. There are two significant advantages for obtaining input from these units: First, they know how to employ their Aviation, ADA or Artillery unit. Second, they know how they will normally be deployed when they are supporting the ground commander.

The division Aviation unit can provide technical expertise to discuss the common requirements of Aviation support. As an example, Aviation's forward arming and refueling points (FARPs) are normally located 18 to 25 kilometers

Brigade Airspace Management

from the FLOT or FEBA (forward edge of the battle area) and are positioned to maximize cover and concealment. The ground commander should state, in general terms, where the FARP will be located. As an example, the FARP will be at least 5 km to the rear of the brigade main command post and aircraft will not overfly the command post without prior permission. This information will be used by the Aviation unit to select the location for the FARP. The ground commander enhances the survivability of his command post by not having aircraft fly into or over his location, and the Aviation unit knows where to place its air routes into and out of its FARP. When the main command post displaces, the FARP will be relocated by using the standard procedures mentioned. This is just one example of what must be in the airspace management portion of the SOP.

Air Defense Artillery units can provide effective input to the SOP. ADA liaison is available in the ADA battalions and from the command section of the ADA batteries. Because of the limited numbers of ADA systems, the ground commanders' area of responsibility might not be able to have an umbrella of antiaircraft protection. So, it is imperative for the ground commander to decide what areas he wants protected. His decision is a list of priorities that might be incorporated in the SOP. The list might simply state that maneuver forces have first priority, command post second, brigade trains third, etc. With this routine list of priorities for ADA protection, the supporting unit can plan to apportion its scarce resources to provide maximum protection. As an example, the command post would have a predetermined 2 to 4 km circle drawn around it for the emplacement of ADA systems. The Aviation units would also know that the ground commander normally employs the ADA firing positions in this manner and would plan the air routes to avoid penetrating these circles.

Because of the enemy's counterbattery capability, the Artillery unit must be integrated in the same procedures of the SOP. Circles would not be drawn around the firing batteries nor would the Aviation unit plan its air routes to avoid tube locations. Gun tubes are normally easy to locate when flying at nap-of-the-earth altitudes. The prime concern is locating tubes away from the command post or FARP. By receiving assistance from Aviation, ADA and Artillery units, a coordinated SOP can be written, and it will facilitate the writing of operation orders (OPORDs).

Operation Orders

Operation orders provide for coordinate action to carry out the decision of the commander. Essential to the OPORD are the airspace management execution procedures. The commander should identify to all organic, attached and supporting units his method of employing Aviation and ADA units. An operations overlay of the battle area that identifies the objective(s) and the control measures coupled with the OPORD will graphically show the commander's method of controlling his airspace. As the tempo of the battle increases, there might not be sufficient time to write OPORDs and draw overlays to depict the changes of the situation. Verbal orders will have to take the place of the written guidance.

Electronic Communications

In a high threat environment where the enemy will jam, intercept or direction find your communications, the use of electronic communications must be minimized. The commander and his staff should use wire communication as extensively as possible to provide changes to the OPORD. Telephone wire service rarely gives away the location of ground units because it is difficult to jam or intercept. Prior to an offensive operation all airspace users must be tied into the same telephone network. Last minute changes can be safely passed without giving vital information to the enemy.

As the offensive operation becomes fluid and the telephone wire service is no longer practical, radio communications must be used. All airspace users must be integrated into the command nets to expedite the exchange of information. Commanders using voice communications with all the airspace users must minimize air time and maximize their control of the airspace.

The SOP, OPORD and electronic communication means are not going to be effective unless they are exercised with frequent training during peacetime.

Part IV next month will provide airspace management objectives and point out some tools available within the brigade and battalion that can be used for training the staffs and subordinate commanders. It also will provide a checklist that can be used to develop the airspace management portion of the SOP.

U.S. Army Communications Command
ATC ACTION LINE

Lights Out Night Vision Goggles Training

IN MARCH 1984 the Federal Aviation Administration issued a Grant of Exemption to FAR sections 91.73(a) and (b) for the Army to conduct a part of its night vision goggles (NVG) training with aircraft position lights out. Commanders, *at their discretion,* may authorize NVG training in a lights out mode subject to the following conditions and limitations as extracted from the Grant of Exemption.

* * * * * *

1. This exemption is limited to night vision flight training in U.S. Army tactical helicopters.
2. Safety Observers

a. An airborne training operation—

(1) May be conducted in a minimal two-helicopter flight with a dedicated observer being on duty aboard each helicopter. The flight shall be conducted in such a manner as to enable the observers collectively to survey full about the entire flight for nonparticipating aircraft; or

(2) shall be escorted by a properly lighted aircraft serving as an observation platform dedicated to surveillance for nonparticipating aircraft.

b. Traffic notifications from the observer to the training flight shall be timely commensurate with the position and speed of the observer nonparticipating traffic.

c. When nonparticipating traffic is relevant, the pilot of each training flight aircraft shall light that aircraft's position lights and keep them lighted until the traffic is no longer relevant.

3. Airborne operations may not be conducted over 200 feet above the surface and must be contained within a prescribed and publicized area that—

a. is simply defined, e.g., the radius area of a point or location;

b. is established in an area of low traffic density;

c. is not within 5 miles of any public use airport;

d. does not infringe upon FAA designated airspace areas, e.g., control zones and airport traffic areas; and

e. has been coordinated with the appropriate FAA Region's Air Traffic Division and Flight Standards Division offices.

4. The holder shall advertise each approved training area to operators at all airports within 50 miles of the area for 60 days preceding its initial use.

5. Ground (airport/staging area) operations in noncompliance with FAR Section 91.73(b) may be conducted at locations where only the holder's aircraft involved in night vision flight training are operating and suitable alternative measures for collision avoidance are instituted.

6. The holder shall provide real-time notification of training activities through notices to airmen (NOTAM) issued through FAA flight service stations at least 24 hours prior to commencement of the training activity. The NOTAM, as a minimum, shall include the location (as described in condition 3a above), time and altitude of the training activity.

7. The holder shall establish procedures for collision avoidance among its aircraft operating pursuant to this exemption, including observer aircraft.

* * * * * *

For additonal information or clarification, contact Mr. Jesse M. Burch, AUTOVON 284-7796/6304.

Readers are encouraged to address matters concerning air traffic control to:
Director, USAATCA Aeronautical Services Office, Cameron Station, Alexandria, VA 22314

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